AMENDMENTS TO THE CLAIMS

1. (currently amended) A system for calculating and reporting slump, comprising:

a delivery vehicle having a mixing drum and hydraulic drive for rotating the mixing drum;

a fluid supply and a flow valve coupling said fluid supply to the mixing drum;

a rotational sensor mounted to the mixing drum and configured to sense drum activity in the form of a rotational speed of movement of the mixing drum;

a hydraulic sensor coupled to the hydraulic drive and configured to sense drum activity in the form of a hydraulic pressure required to turn the mixing drum; and

a programmable processor coupled to the flow valve, rotational sensor and hydraulic sensor, and

a program memory storing a program that causes the processor to compute a ~~rheological value~~ slump measure for a mixture within the mixing drum using information from the sensors, wherein the rotational speed of movement of and hydraulic pressure applied to the mixing drum over a period of time [[is]] are used in determining when mixing is complete and in calculating the ~~rheological parameter~~ slump of the material within the mixing drum, wherein the processor determines whether to discharge fluid into the mixing drum based upon the slump of the material.

2. (currently amended) The system of claim 1, wherein the material within the mixing drum is concrete and the history of the rotational speed of the mixing drum is used to qualify the accuracy of a calculation of current slump.

3. (currently amended) The system of claim 2, wherein the material within the mixing drum is concrete and the stability of rotational speed of the mixing drum is used to qualify the accuracy of a calculation of current slump.

4. – 14. Cancelled.

15. (previously presented) The system of claim 1 wherein the material within the mixing drum is concrete and said processor further determines from the sensed rotational speed of or hydraulic pressure applied to the drum, or both, one or more of:

adequacy of mixing of concrete,

the occurrence of a concrete pour action from the mixing drum,

appropriateness of a concrete discharge from the mixing drum,

concrete slump values,

the occurrence of a fluid discharge into the mixing drum,

appropriateness of a fluid discharge into the mixing drum,

effect of a fluid discharge into the mixing drum,

water supply conditions.

16. (canceled)

17. (currently amended) The system of claim 1 [[16]] wherein said fluid discharged into said drum comprises a chemical additive.

18. (currently amended) The system of claim 1 [[17]] wherein said chemical additive is a superplasticizer.

19. (currently amended) The system of claim 1 [[16]] wherein said fluid discharged into said drum comprises water.

20-27. (canceled)

28. (New) A system for calculating and reporting slump of concrete in a concrete mixing drum, comprising:

a concrete mixing drum and a hydraulic drive for rotating said concrete mixing drum;

a fluid supply and a flow valve for coupling water or chemical additive supply to said concrete mixing drum;

a rotational sensor mounted to said concrete mixing drum and configured to sense drum activity in the form of a rotational speed of movement of said concrete mixing drum;

a hydraulic sensor coupled to the hydraulic drive and configured to sense drum activity in the form of a hydraulic pressure required to turn said concrete mixing drum; and

a programmable processor coupled to said flow valve, said rotational sensor, and said hydraulic sensor; and

a program memory storing a program that causes said programmable processor to compute a slump measure for a concrete mixture within said concrete mixing drum using information from said rotational and hydraulic sensors, wherein:

(i) the rotational speed of movement of and hydraulic pressure applied to said concrete mixing drum over a period of time is used by said programmable processor and said

program memory in determining when mixing of concrete is complete and in calculating the slump of concrete within said concrete mixing drum;

(ii) the stability of rotational speed of said concrete mixing drum is used by said programmable processor and said program memory to qualify the accuracy of a calculation of current slump of the concrete contained in said concrete mixing drum;

(iii)said programmable processor determines whether to discharge water or chemical additive into said concrete mixing drum based upon the slump of the concrete; and

(iv)said processor further determines from the sensed rotational speed of or hydraulic pressure applied to the drum, or both, one or more of: (A) adequacy of mixing of the concrete; (B) the occurrence of a concrete pour action from said concrete mixing drum; (C) appropriateness of a concrete discharge from said concrete mixing drum; (D) concrete slump values; (E) the occurrence of a discharge of water or chemical additive into said concrete mixing drum; (F) appropriateness of a discharge of water or chemical additive into said concrete mixing drum; (G) the effect of a discharge of water or chemical additive into said concrete mixing drum; or (H) water supply conditions.

29. (New) The system of claim 28 further comprising water and chemical additive supplies and flow valves for each of these supplies, said flow valves being connected to said programmable processor.

30. (New) The system of claim 28 wherein said chemical additive is a superplasticizer.